

Taxonomic Changes in Ixonanthaceae from the Venezuelan Guayana

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ABSTRACT. *Cyrillopsis micrantha* (Steeyermark) P. E. Berry & N. Ramírez is a new combination based on *Ochthocosmus micranthus* Steeyermark and constitutes only the second known species of *Cyrillopsis* (Ixonanthaceae). The number of varieties in *Ochthocosmus roraimae* Benthham is reduced from three to two, and *Ochthocosmus parvifolius* Hallier f. is treated as a species of uncertain status, with no known extant type material.

The family Ixonanthaceae, which is sometimes treated as a subfamily of the Linaceae, includes two genera in the Neotropics, *Cyrillopsis* and *Ochthocosmus*. These two genera are distinguished mainly by fruit and pedicel characters. *Ochthocosmus* has a 5-locular ovary, the fruit is a prismatically cylindric, elongate, 5-valved capsule, and the seeds have a conspicuous, thin, lateral wing. Furthermore, the pedicels are non-articulated, that is, they abscise flush with the rachis. In contrast, *Cyrillopsis* has a 2-locular ovary, its fruit is an elongate, slightly asymmetrical, 2-valved capsule, and the seeds lack wings but are partly covered at the upper end by a 2-lobed membranaceous aril; its pedicels are articulated, with an abscission zone and bracteoles located roughly one-third of the way up the pedicel from the rachis.

Until now, *Cyrillopsis* was considered to have a single species, *C. paraensis* Kuhlman, and *Ochthocosmus* to have eight recognized neotropical species (Steeyermark & Luteyn, 1980; Steeyermark, 1984, 1988). Although some botanists, such as Mabberley (1990), consider *Ochthocosmus* to include species both in South America and in Africa, Forman (1965) presented convincing arguments to place the African species in the genus *Phyllocosmus* Klotzsch, thus leaving *Ochthocosmus* as a strictly neotropical group.

While preparing the treatment of the Ixonanthaceae for the *Flora of the Venezuelan Guayana*, we examined recently collected fruiting material of

Ochthocosmus micranthus Steeyermark, a species that was described from flowering specimens only (Steeyermark, 1988). The articulated pedicels, arillate seeds, and 2-locular fruits of these new collections place the species clearly in *Cyrillopsis* rather than in *Ochthocosmus*. The transfer of *O. micranthus* to *Cyrillopsis* brings the number of currently recognized species in *Cyrillopsis* to two and in *Ochthocosmus* to seven. We also reduce the number of varieties in *O. roraimae* from three to two by removing *O. roraimae* Benthham var. *parvifolius* (Hallier f.) Steeyermark & Luteyn as a variety of this species.

Cyrillopsis micrantha (Steeyermark) P. E. Berry & N. Ramírez, comb. nov. Basionym: *Ochthocosmus micranthus* Steeyermark, Ann. Missouri Bot. Gard. 75: 318. 1988. TYPE: Venezuela. Bolívar: Ayavaparú, 10 km SW of Wadacapiapué, 5°18'N, 60°58'W, 1100 m, 13 Nov. 1986, Hernández 348 (holotype, VEN; isotype, NY). [Steeyermark (1988) was incorrect in citing the holotype at MO; rather, the holotype is at VEN and is so labeled, and there is no type material at MO.] Figure 1.

Steeyermark described this species based on two flowering specimens that strongly resemble other species of *Ochthocosmus* from the Guayana region. Three more recent collections from the type locality, however, Huber 11958, Huber & Hernández 11948, and Hernández 395, all have nearly mature fruits, and they conform to the characteristics of *Cyrillopsis* described above (see Fig. 1). Also, the type collection and the other specimens cited below all have the characteristic articulated pedicels of *Cyrillopsis* that do not occur in *Ochthocosmus*.

This second species of *Cyrillopsis* has much smaller leaves than the previously known species, *C. paraensis* Kuhlman. Whereas *C. paraensis* is pri-

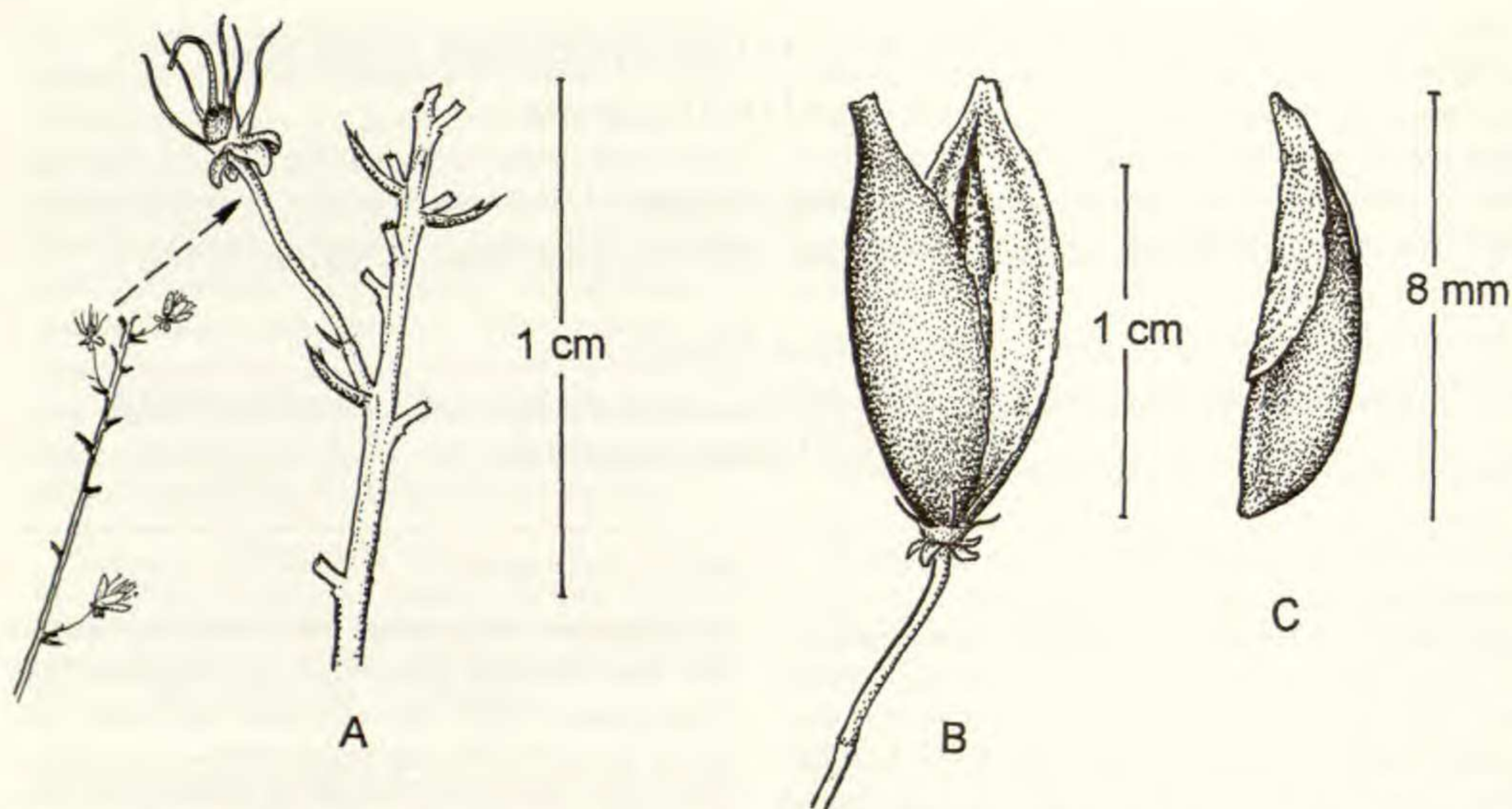


Figure 1. Details of an inflorescence and fruit of *Cyrillopsis micrantha* (Steiermark) P. E. Berry & N. Ramírez. —A. Section of inflorescence after most of the flowers have dehisced. Note the articulated pedicels and the bracteole at the point of articulation. Drawn from *Hernández 348* (VEN). —B. Mature fruit, a somewhat fleshy capsule splitting into two halves. —C. Seed with arillate structure at the apex. B and C drawn from *Huber & Hernández 11948* (MO).

marily a lowland species distributed from southeastern Venezuela to French Guiana and northern Brazil, *C. micrantha* is an upland species endemic to the southeastern part of the Gran Sabana at around 1100 m elevation. It occurs in an unusual shrub savanna (described in Fölster, 1992: 37) that is dominated by a sympatric population of *Ochthocosmus roraimae*.

Additional specimens examined. VENEZUELA. **Bolívar:** Ayavaparú, 10 km SW of Wadakapiapué, 5°18'N, 60°58'W, 1100 m, 13 Nov. 1986, *Hernández 359* (US, VEN); Ayavaparú, 15 km al W de Wadakapiapué-tepui, 5°16'30"N, 61°00'W, 1110 m, 6 Mar. 1987, *Hernández 395* (herbarium at San Ignacio de Yuruaní, Venezuela); ca. 10 km SW of Wadakapiapué-tepui, N of the junction of the Río Caraurín and the Río Yuruaní, ca. 1100 m, 5°15'N, 60°58'W, 18 Feb. 1987, *Huber & Hernández 11948* (MO, US, VEN); ca. 10 km SW of Wadakapiapué-tepui, N of the junction of the Río Caraurín and the Río Yuruaní, ca. 1030 m, 5°14'N, 60°58'W, 19 Feb. 1987, *Huber 11958* (MO, MYF, US—2 sheets, VEN).

The label of *Hernández 395* cites "Wontai" as a common name for this species (in Taurepán, a dialect of the Pemón Amerindian group).

Ochthocosmus roraimae Benthham in Hooker, London J. Bot. 2: 366. 1843. TYPE: Guyana or Venezuela ("British Guiana" on label), large shrub 12–16 ft. high, banks of rivers, near Mt. Roraima, Oct.–Nov. 1842, *Richard Schomburgk 1037* (holotype, K, photo, MO).

This species is widespread over much of the Venezuelan Gran Sabana and extends into western Guyana and adjacent Roraima state in Brazil. It occurs between 800 and 1300 m elevation; field observations by Gabriel Picón and Nelson Ramírez (pers. comm.) have shown *O. roraimae* to be a variable taxon occurring in a variety of local habitats, from fairly open shrublands to low or moderately tall and dense forest.

Steiermark & Luteyn (1980) recognized three varieties under *O. roraimae*: var. *roraimae*, var. *parvifolius* (Hallier f.) Steiermark & Luteyn, and var. *grandifolius* (Steiermark) Steiermark & Luteyn. *Ochthocosmus roraimae* var. *grandifolius*, which is known only from the type collection, is unique in its large, stiff, and virtually entire-margined leaves, so it is maintained here as a distinct variety. However, Steiermark and Luteyn employed an extremely narrow concept for the typical variety *roraimae*, characterizing it by a shiny and reticulately raised-veined upper surface and assigning to it only two additional specimens besides the type (of which they examined a reduced black-and-white photograph). They then relegated to variety *parvifolius* all remaining specimens of the species, encompassing a wide range of variation in leaf size, crenulation of the margins, and length of the inflorescence. After examining a full-sized color Cibachrome print of the type of *O. roraimae*, kindly sent by the Kew herbarium,

and studying the full range of variation of the species, there is no consistent way to distinguish the specimens of variety *roraimae* from variety *parvifolius*, and all specimens cited by Steyermark & Luteyn (1980) under variety *parvifolius* are now treated as belonging to variety *roraimae*. The status of the basionym of variety *parvifolius* is discussed following the key to the varieties of *O. roraimae*.

KEY TO THE VARIETIES OF *OCHTHOCOSMUS RORAIMAE*

1. Leaf blades of fertile branches oval, 7–13 × 4–8 cm, margins entire or nearly so; panicles 11–14 cm long, 10–12 cm wide; known only from the upper slopes of Cerro Venamo
O. roraimae var. *grandifolius*
1. Leaf blades of fertile branches mostly obovate, 3–10 × 2–6 cm, margins usually noticeably crenate or toothed; panicles 3–8 cm long, 2–5 cm wide; widespread throughout much of the Gran Sabana, also in western Guyana and adjacent Brazil . . .
O. roraimae var. *roraimae*

Ochthocosmus parvifolius Hallier f., Beih. Bot. Centralbl. 39 (2). 15. 1921. *Ochthocosmus roraimae* var. *parvifolius* (Hallier f.) Steyermark & Luteyn, Brittonia 32: 135. 1980. TYPE: Guyana or Venezuela ("British Guiana" on label), undershrub 6–10 ft. high, sandstone region, Mt. Roraima, Oct.–Nov. 1842, Richard Schomburgk 1046 (holotype, B destroyed, photo, US, VEN).

The holotype of *Ochthocosmus parvifolius* Hallier f. at B was destroyed in 1943, and there is apparently no extant duplicate material (inquiries were made at B, BM, G, K, and W). The type photographs are dark and much reduced in size from the original specimen, with no evidence of flowers or inflorescences. Steyermark & Luteyn (1980) treated this as a variety of *O. roraimae*, but the inflorescence, described as just 2.5 cm long, is very short for that species. According to the protologue of *O. parvifolius* and Schomburgk's collection notes in the New York Botanical Garden archives, the type specimen came from a low shrub smaller than the more robust and often tree-like *O. roraimae*. *Ochthocosmus parvifolius* was also described as having unequal sepals, which are characteristic of

species such as *O. floribundus* Gleason, but not of *O. roraimae*, which has equal-sized, glandular-margined sepals. *Ochthocosmus floribundus* is not known to occur around Mt. Roraima and is known primarily from areas farther north and west in Estado Bolívar such as Auyán-tepui and Cerro Guaiquinima.

The possibility also exists that *Ochthocosmus parvifolius* is conspecific with a later-described species such as *O. attenuatus* Steyermark & Luteyn, which is known so far only from the type locality near San Rafael de Camoirán in the northern part of the Gran Sabana. Given the current uncertainties concerning the identity of *O. parvifolius*, and until the issue can be better resolved, we recommend that this species be treated as one of uncertain position (*incertae sedis*).

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Literature Cited

- Fölster, H. 1992. Holocene autochthonous forest degradation in southeast Venezuela. Pp. 25–44 in J. G. Gol-dammer (editor), *Tropical Forests in Transition*. Birk-häuser Verlag, Basel.
- Forman, L. L. 1965. A new genus of Ixonanthaceae, with notes on the family. *Kew Bull.* 19: 517–526.
- Mabberley, D. J. 1990. *The Plant-Book. A Portable Dic-tionary of the Higher Plants*. Cambridge Univ. Press, Cambridge.
- Steyermark, J. A. 1984. Flora of the Venezuelan Guaya-na. I. *Ann. Missouri Bot. Gard.* 71: 297–340.
- . 1988. Flora of the Venezuelan Guayana. IV. *Ann. Missouri Bot. Gard.* 75: 311–351.
- & J. L. Luteyn. 1980. Revision of the genus *Ochthocosmus*. *Brittonia* 32: 128–143.